



**Wednesday
February 10, 2016
3:30 pm
Room 1005 EECS**

**Prof. Ellen Zweibel
University of Wisconsin-
Madison**

The Macrophysics and Microphysics of Cosmic Rays

Cosmic rays comprise only a billionth of interstellar particles by number, but carry as much energy as the thermal gas. They exchange energy and momentum with the thermal background through interactions with small scale magnetic turbulence, which also isotropizes them and enables a fluid description of cosmic rays despite their low collisionality. I will discuss the fluid model and applications to astrophysical phenomena such as galactic winds and interstellar heating.

About the Speaker: Ellen Zweibel is the William L. Kraushaar Professor of Astronomy and Physics and Chair of the Astronomy department at the University of Wisconsin-Madison, where she has a broad research program in plasma astrophysics. She was a founding member and past Director of the Center for Magnetic Self-Organization in Laboratory and Astrophysical Plasmas. Prof. Zweibel did her undergraduate work in Mathematics, at the University of Chicago, and her graduate work in Astrophysical Sciences, at Princeton. From 1980 to 2003, she was a faculty member at the University of Colorado.